# WM-AF64/BF64

# SERVICE MANUAL

*US Model*
*Canadian Model*
*WM-AF64*

*AEP Model*
*UK Model*
*E Model*
*WM-BF64*

**Photo : WM-AF64**
**Gray Type**

## SPECIFICATIONS

**Radio section**

*Frequency range*
FM: 87.6—108MHz (EXCEPT FOR WG model)
87.6—107MHz (WG model)
AM: 530—1,605kHz (EXCEPT FOR WG model)
531—1,602 (WG model)

Antenna
FM: Headphone cord antenna
AM: Built-in ferrite bar antenna

**Tape player section**

*Frequency response* (Dolby NR off)
30—15,000 Hz

Power output
20 mW + 20 mW load impedance 18 ohms at DC operation

*Power requirements*
3 V DC
Two size AA (R6) batteries
DC IN 3V jack accepts:
- Optional Sony EBP-500B battery case for use with two size D (R20) batteries
- Optional Sony AC-D2L AC power adaptor for use on 120V AC, 60Hz (US, Canadian model)
for use on 120V AC, 60Hz or 220V AC, 50Hz (E model)
for use on 220V AC, 50Hz (AEP, WG model)
for use on 240V AC, 50Hz (UK model)
- Optional Sony DCC-70 car battery cord for use with 12V car battery

Battery life
Approx. 8 hours on tape playback and approx. 20 hours on FM reception, using Sony alkaline batteries AM3 (N)

Dimensions
Approx. 116.1×93.1×37.4 mm (w/h/d)
(4⅝×3½×1½ inches)
incl. projecting parts and controls

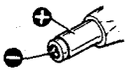
Weight
Approx. 245 g (8.7 oz)
incl batteries

Accessory supplied
Belt clip (1)
US, Canadian, AEP, UK, WG model):
Stereo headphones (open-air type, 1)
E model:
Stereo earphones (open-air type, 1)

● WG model: West Germany model

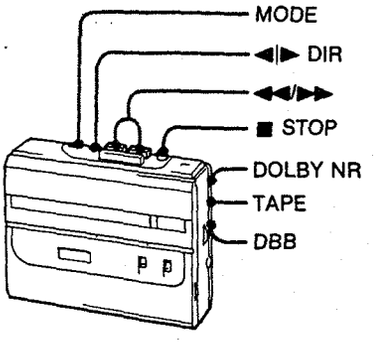
| | |
|---|---|
| Model Name Using Similar Mechanism | WM-F59/F69 |
| Tape Transport Mechanism Type | MF-WM69-80 |

**Note:** Use only the recommended AC power adaptor or car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.



Polarity of the Sony plug

## PARTS IDENTIFICATION

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RADIO CASSETTE PLAYER

SONY®

MICROFILM

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Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270℃ during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

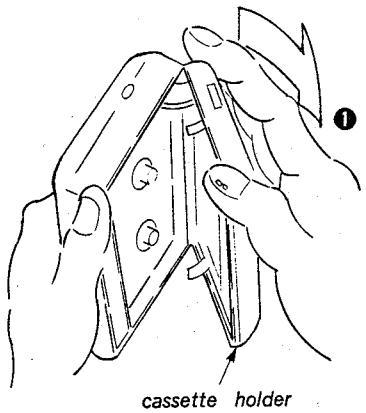
Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

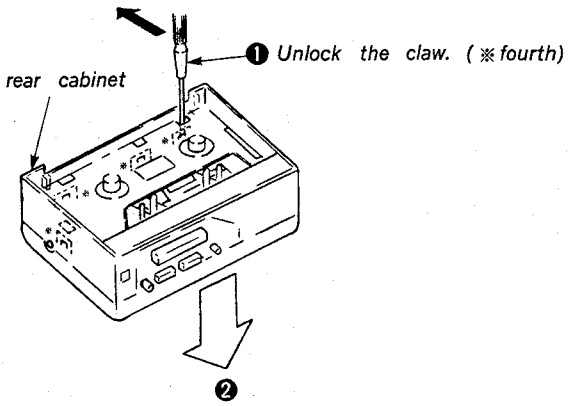
# SECTION 1
# DISASSEMBLY

**Note:** Follow the disassembly procedure the numerical order given.

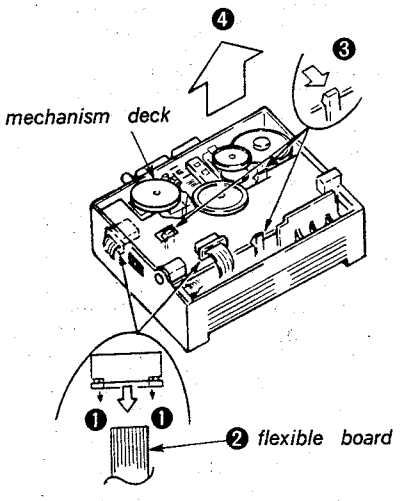
## 1-1. CASSETTE HOLDER




## 1-2. REAR CABINET

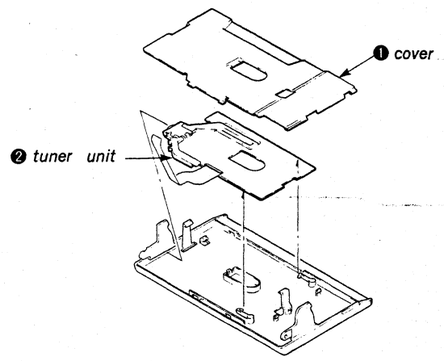



## 1-3. MECHANISM DECK

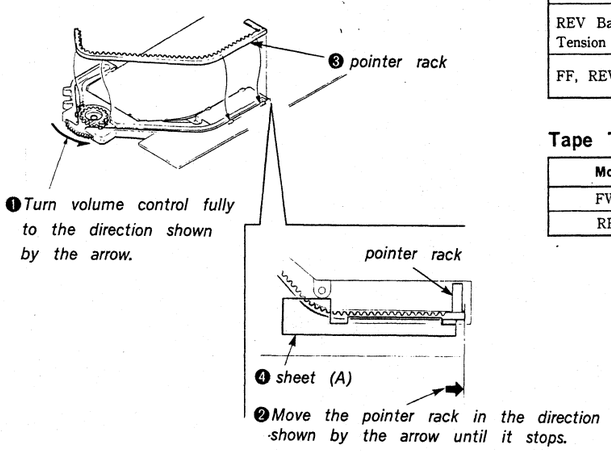


# SECTION 2
# MECHANICAL MEASUREMENTS

## 1-4. TUNER UNIT




## 1-5. POINTER RACK SETTING


❸ pointer rack
❶Turn volume control fully to the direction shown by the arrow.
pointer rack
❹ sheet (A)
❷Move the pointer rack in the direction shown by the arrow until it stops.

### PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab:
   playback head — pinch roller
   capstan — rubber belts
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage (2.5V) unless otherwise noted.

### Torque Measurement

| Mode | Torque Meter | Meter Reading |
|---|---|---|
| FWD | CQ-102C | 25—55g•cm (0.30—0.76oz•inch) |
| FWD Back Tension | | less than 3 g•cm (less than 0.04oz•inch) |
| REV | CQ-102RB | 22—55 g•cm (0.30—0.76oz•inch) |
| REV Back Tension | | less than 3 g•cm (less than 0.04oz•inch) |
| FF, REW | CQ-201B | more than 60g • cm (more than 0.83oz•inch) |

### Tape Tension Measurement

| Mode | Torque meter | Meter reading |
|---|---|---|
| FWD | CQ-403A | more than 55 g•cm (more than 0.76oz•inch) |
| REV | CQ-403R | |



# SECTION 3
# ELECTRICAL ADJUSTMENTS

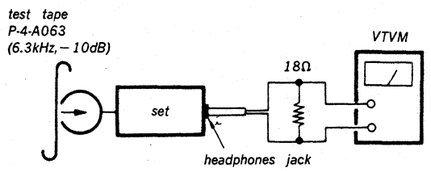
## 3-1. CASSETTE SECTION

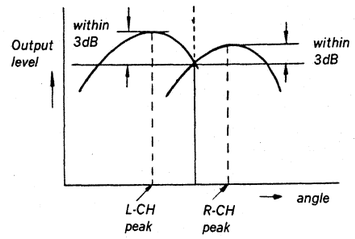
### Playback Head Azimuth Check
**• perform this check both in FWD and REV mode.**

**Note:** This set is not featured the head azimuth adjustment. When repacing the head, check the both L-ch and R-ch output levels and also those phases.

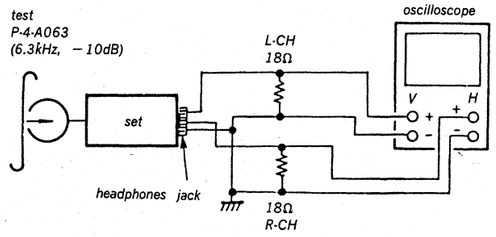
**Procedure:**

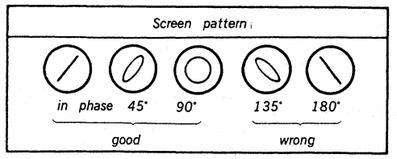
1. Level Check
   Mode : playback



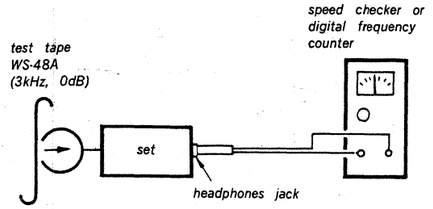

2. Phase Check
   Mode : playback




### Tape Speed Adjustment

**Procedure:**
Mode: playback

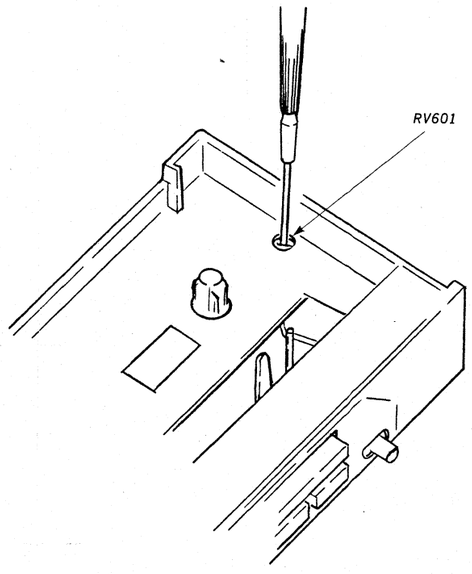



**Specification:**

| Speed checker | Digital frequency counter |
|---|---|
| ±1% | 2,970—3,030Hz |

Frequency difference between the beginning and the end of the tape should be within±2.5% (±75%Hz).

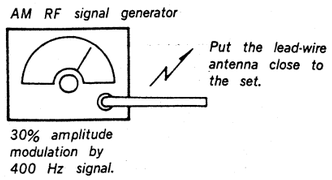
**Adjustment Location:** RV601

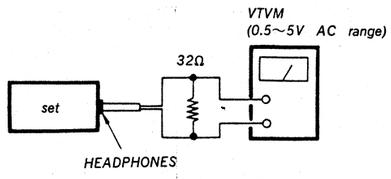


## 3-2. RADIO SECTION

### AM

**Setting**
Function: RADIO
BAND: AM




| AM TRACKING ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| T6 | 620kHz |
| CT2 | 1,400kHz |

( ): West Germany model

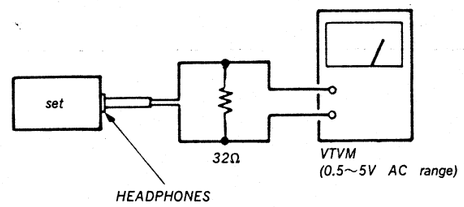
| AM FREQUENCY COVERAGE ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| T3 | 525kHz (531kHz) |
| CT3 | 1,650kHz (1,602kHz) |

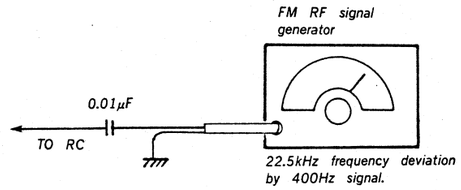
| AM IF ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| T4 | 455kHz |

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capactiors.

### FM

**Setting:**
FUNCTION : RADIO
BAND FM (DX): WM-AF64
FM (ST): WM-BF64




- Repeat the procedures in each adjustment several times, and the adjustments should be finally done by the trimmer capactiors.

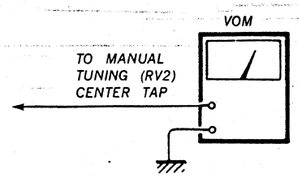
* FM frequency coverage adjustment should be done after frequency control voltage adjustment.

( ): West Germany model

| FM FREQUENCY COVERAGE ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| 87.0MHz (87.6MHz) | 108.5MHz (107MHz) |
| T2 | CT1 |

### FREQUENCY CONTROL VOLTAGE ADJUSTMENT

* This adjustment should be done before FM frequeency coverage adjustment.

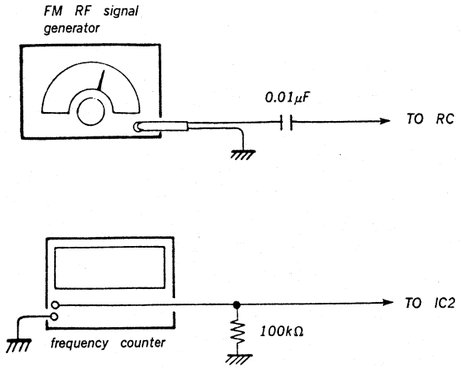



| to be adjusted | RV3(PRESET / RV101) | RV1 |
|---|---|---|
| readings | 1V±0.1V | 9V±0.1V |
| tuning dial | f min | f max |

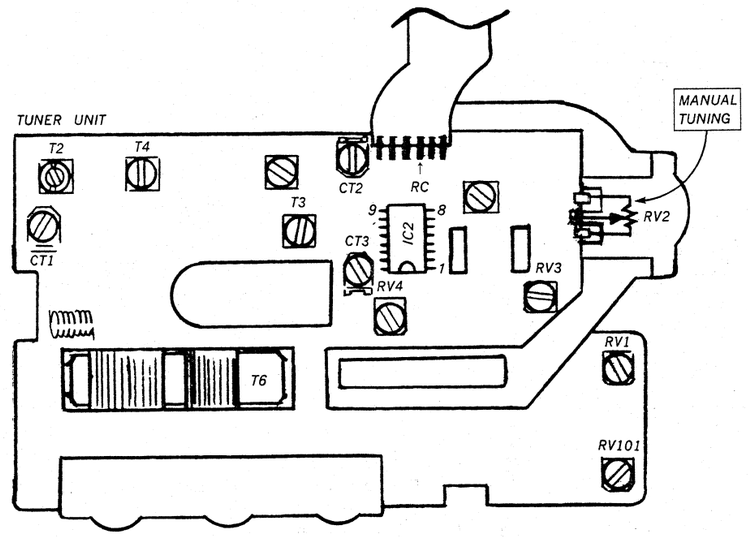


### VCO Adjustment

**procedure:** Carrier frequency: 98MHz
Modulation: 1kHz deviation (30%)




1. Tune the set to 98MHz.
2. Adjust RV4 for 38kHz±200Hz on the counter.



# SECTION 4
# DIAGRAMS

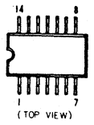
## 4-1. PRINTED WIRING BOARD

### • Semiconductor Location

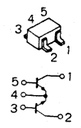
| Ref. No. | Location |
|---|---|
| D301 | H-11 |
| IC301 | D-17 |
| IC302 | C-21 |
| IC303 | D-23 |
| Q301 | C-23 |
| Q302 | E-2 |
| Q303 | D-5 |
| Q304 | E-3 |

### • Semiconductor Lead Layouts

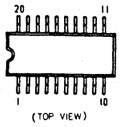
**CXA1249M**




**XN1215**

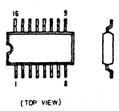



**LA4580M**

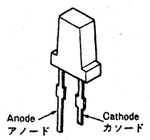


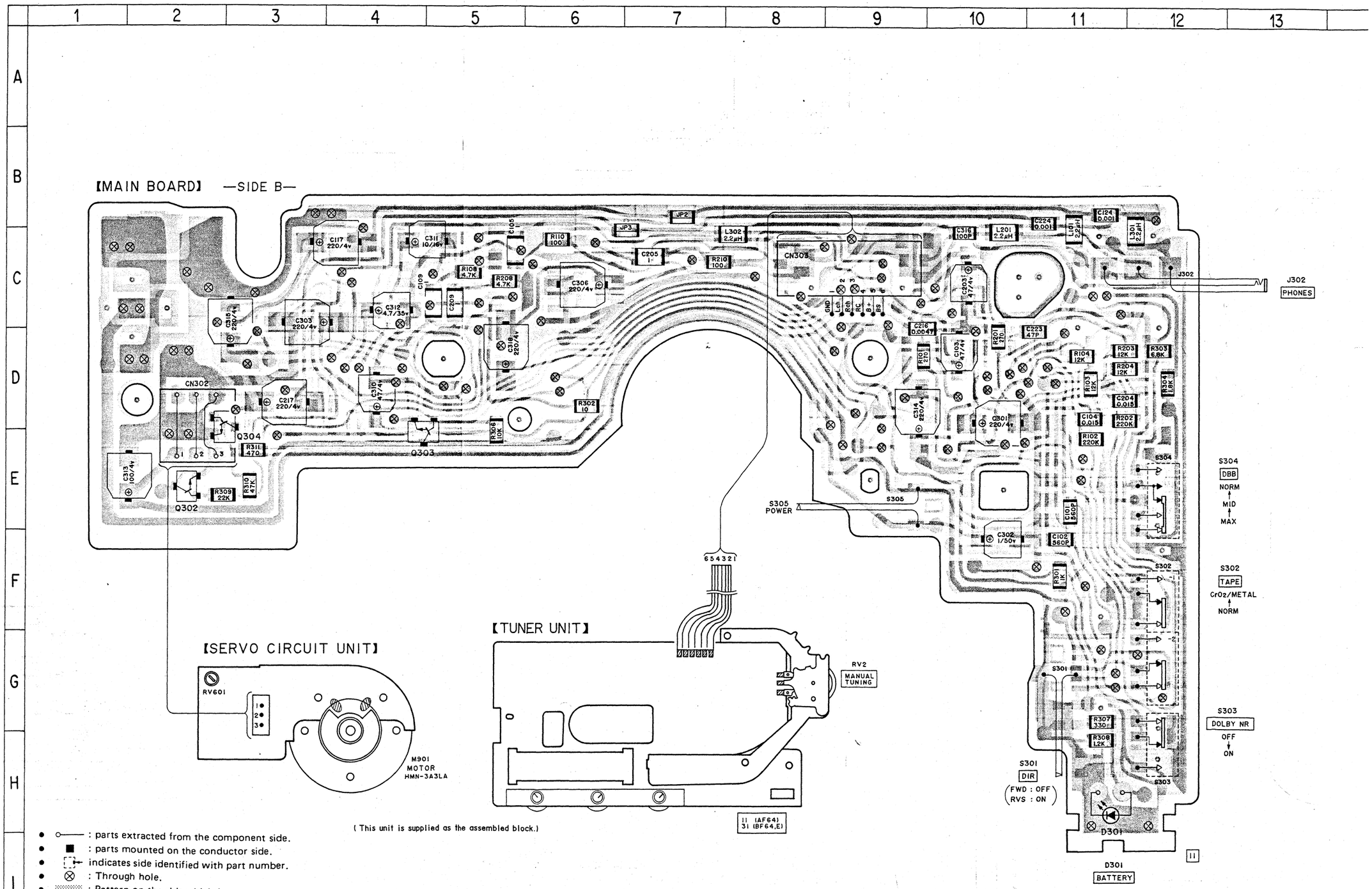

**2SC1623**

**NJM2063AM**




**SLB24VR**



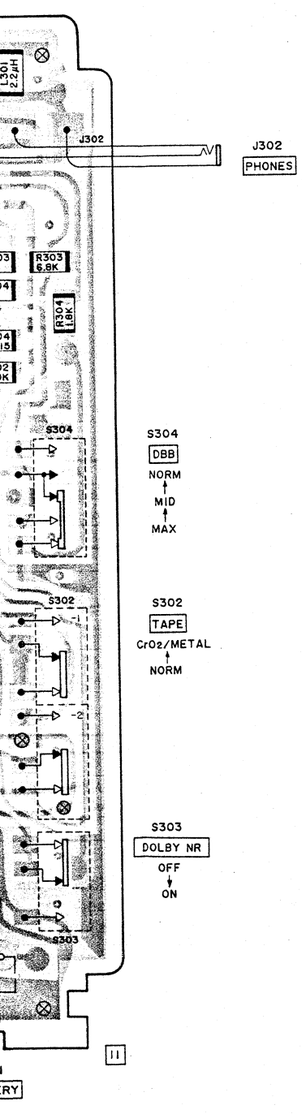



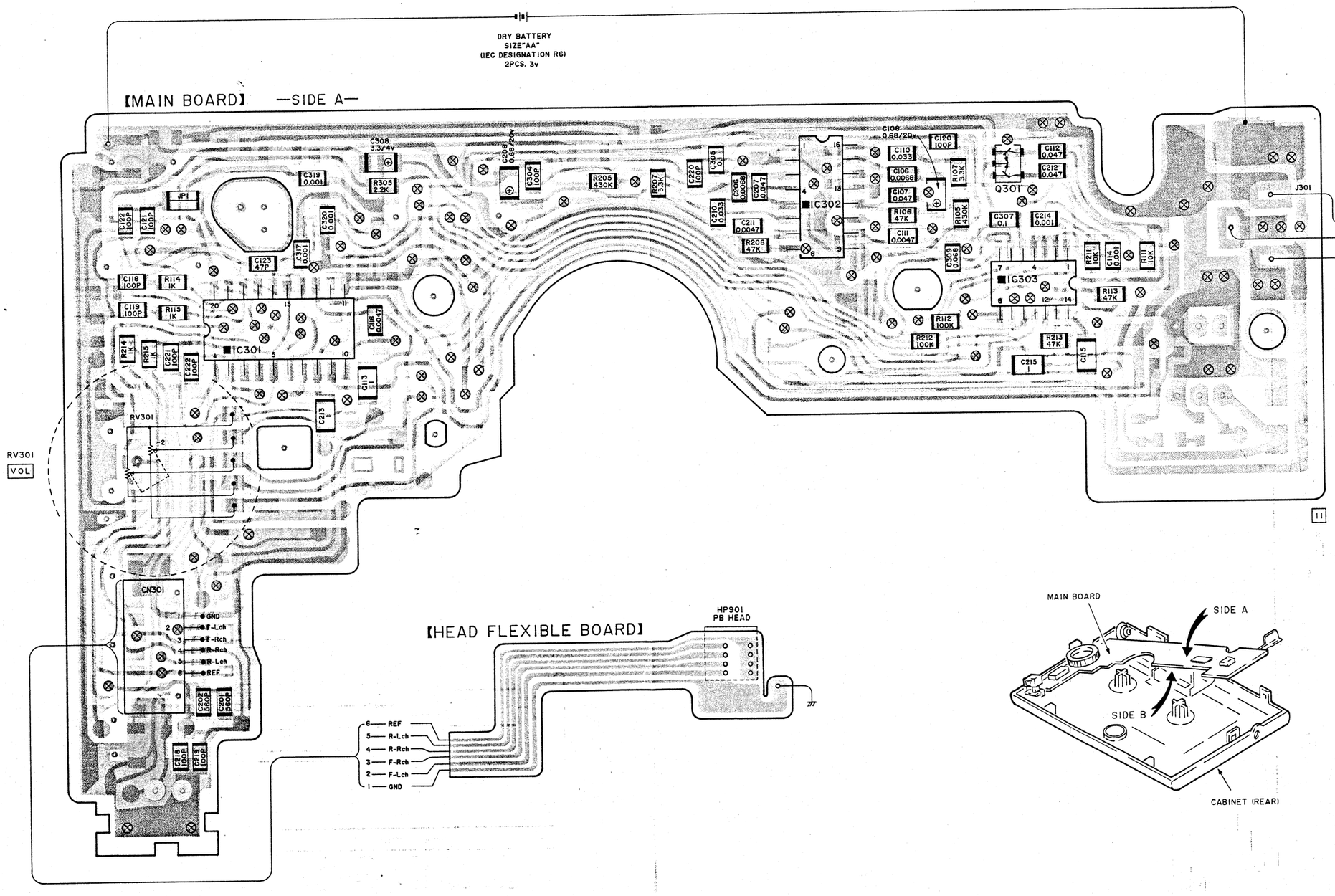

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ⊣ indicates side identified with part number.
- ⊗ : Through hole.
- ▨ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.

12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

DRY BATTERY
SIZE"AA"
(IEC DESIGNATION R6)
2PCS. 3v

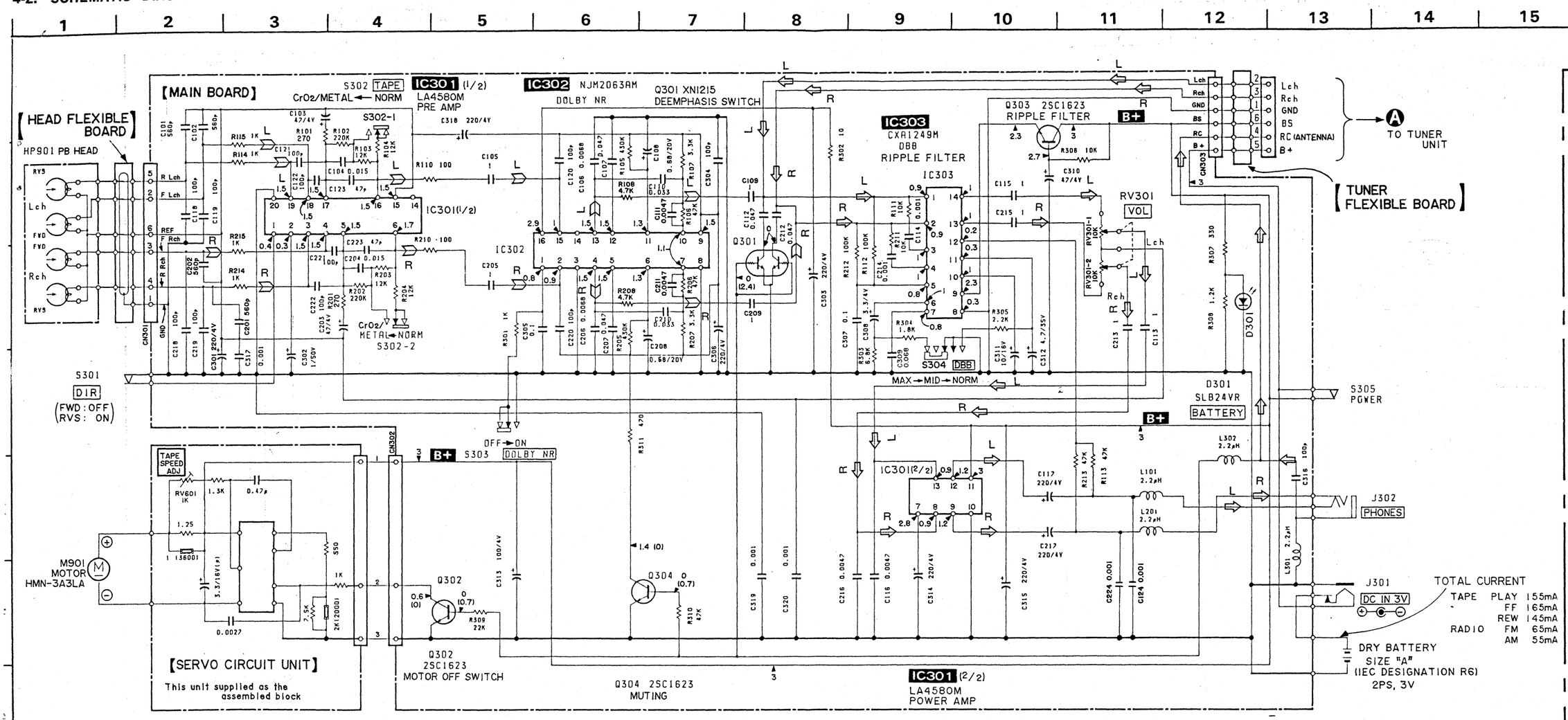
【MAIN BOARD】 —SIDE A—




【HEAD FLEXIBLE BOARD】

## 4-2. SCHEMATIC DIAGRAMS —TAPE RECORDER SECTION—




**Note:**

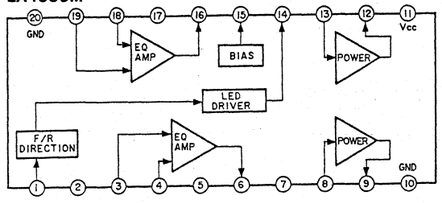
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- Switch

| Ref. No. | Switch | Position |
|---|---|---|
| S301 | DIR | OFF |
| S302 | TAPE | NORM |
| S303 | DOLBY NR | OFF |
| S304 | DBB | MAX |
| S305 | POWER | OFF |

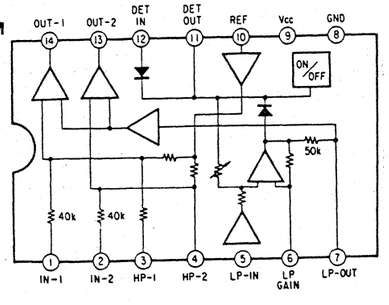
- ▬▬ : B+ Line
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is dc 3V and fed with requrated dc power.ar supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark: PLAY
  ( ): RADIO
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM ⇦ : PB

## • IC BLOCK DIAGRAMS

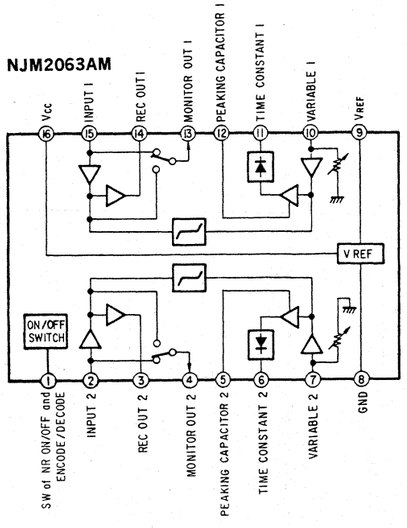
**LA4580M**




**CXA-1249M**




**NJM2063AM**



## 4-3. SCHEMATIC DIAGRAM —TUNER UNIT—

16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

A B C D E F G H I J

【TUNER UNIT】 (THIS UNIT IS SUPPLIED AS THE ASSEMBLED BLOCK)

C1 100P
D1 1SS226
BPF
C35 0.0022
R8 270
Q1 2SC2714 FM RF
R3 150
L3
C3 0.0022
C43 0.001
R1 5.6K
R2 33K
C2 0.002
D2 SVC212
R4 470K
C5 4P
C4 10P
R5 470K
Q2 2SC2714 FM MIX
R6 150K
R7 330
Q2
C7 0.047
C48 0.001
R9 100K
Q3 2SC2712 FM IF AMP
R10 330
C8 0.047
L2 27μH
CF1
C39 0.047
C40 0.047
T4 AM IFT
CF2
R18 8.2K
C15 33P
T5
C16 0.047
Q9, Q10 2SA1162 SWITCH
Q9
D7 MA704
Q10
WM-AF64
R21 2.2K
R20 2.2K
WM-BF64
S2 BAND
WM-AF64 AM → LOCAL → FM DX
WM-BF64 AM → FM MONO → FM ST
S2
WM-AF64
C17 0.001
R24 470K
IC1 TA7787F FM IF/DET AM OSC,IF/DET
IC1
R12 330
R13 120K
R14 470K
C11 1P
Q4 2SC2714 FM OSC
R11 100K
C10 6P
D3 SVC212
D4 SV341
C23 0.047
T6
T3 AM OSC
R22 10K
C51 10 4V
C19 0.047
C18 0.047
C38 0.047
C20 430P
AM FERRITE-ROD ANTENNA
C21 22P
CT2
CT3
R25 470K
C24 4P
C22 0.047
R23 470K
R15 33
T2 FM OSC
CT1
C12 8P
C13 0.22
R16 39K
R17 470K
C36 0.1
C41 100P
C9 0.002
Q8
Q7 XN1501 Q8 2SA1162 POWER SWITCH
C52 10 4V
R28 56K
R27 330
Q7
R26 2.2K
R29 22K
C37 0.1
C44 0.047
L1 27μH
Q102 XN1501 SWITCH
Q103 XN1401 SWITCH
Q101 2SC2712 SWITCH
R108 22K
R104 470K
R105 1M
f MAX
RV1 22K
R106 1M
Q103
Q101
R103 470
Q102
R101 2.2K
R102 2.2K
S3 FM PRESET TUNING
-PRESET-
MANUAL→1→2→3
S3
RV102 100K
-1
-2
-3
WM-AF64
RV101 PRESET f ADJ
WM-BF64
f MIN
RV3 22K
C45 0.1
R107 470K
D102
WM-AF64
WM-BF64
D101
RV2 100K
RV2 MANUAL TUNING
D101,102 1SS184
D5 1SS184
T7
R33 6.8K
C31 0.0027
R36 10
C56 4.7 10V
C34 0.047
D6
C33 0.22
R34 3.3K
C32 47P
Q6
Q5
Q5 2SC2712
Q6 2SC3265
DC-DC CONVERTER
R31 12K
C26 0.1
C25 0.047
VCO RV4 10K
R32 22K
C27 470P
IC2 TA7370F FM MPX AM AMP
IC2
R30 39
C28 0.047
C54 3.3 4V
C29 0.001
C30 0.001
D8 1SS226
C55 10 4V
R19 47
S1 FUNCTION TAPE/RADIO OFF → RADIO
S1
L
R
L-CH
R-CH
GND
B S
R C (ANTENNA)
B+
A TO MAIN BOARD

• Switch

| Ref. No. | Switch | Position |
|---|---|---|
| S1 | FUNCTION | TAPE |
| S2 | BAND | AM |
| S3 | FM PRESET TUNING | MANUAL |

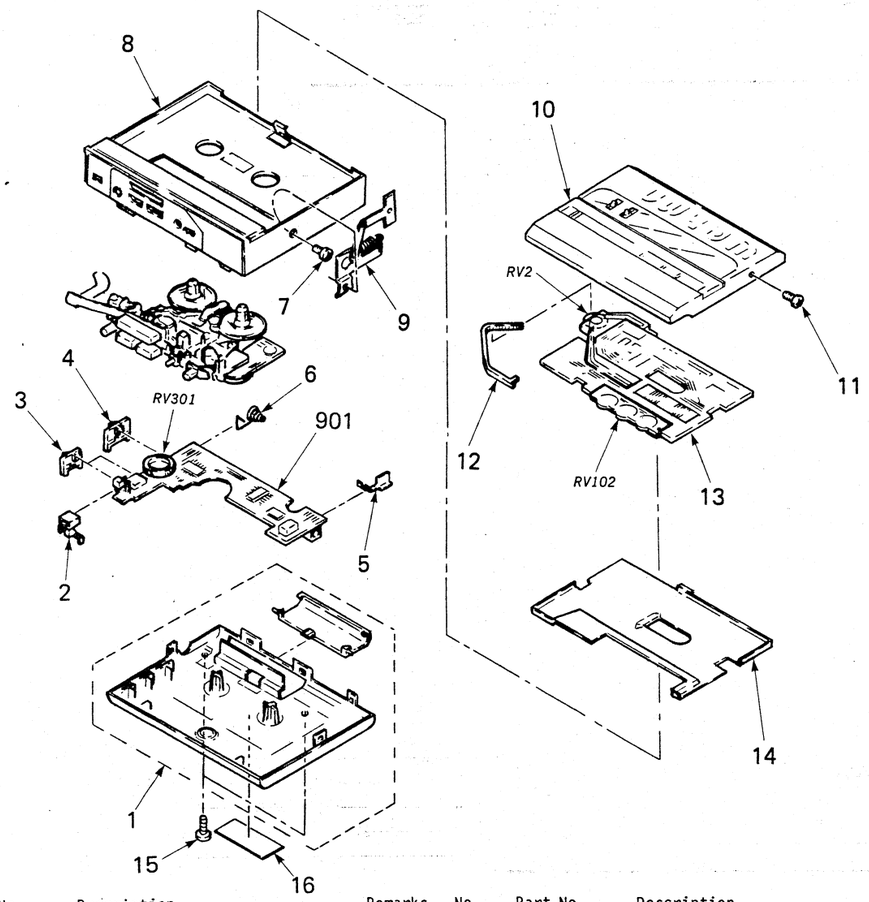
WM-AF64/BF64

# SECTION 5
# EXPLODED VIEWS

**NOTE:**

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) ... KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts' Color
- WG: West Germany model

## 5-1. CABINET, CASSETTE HOLDER SECTION

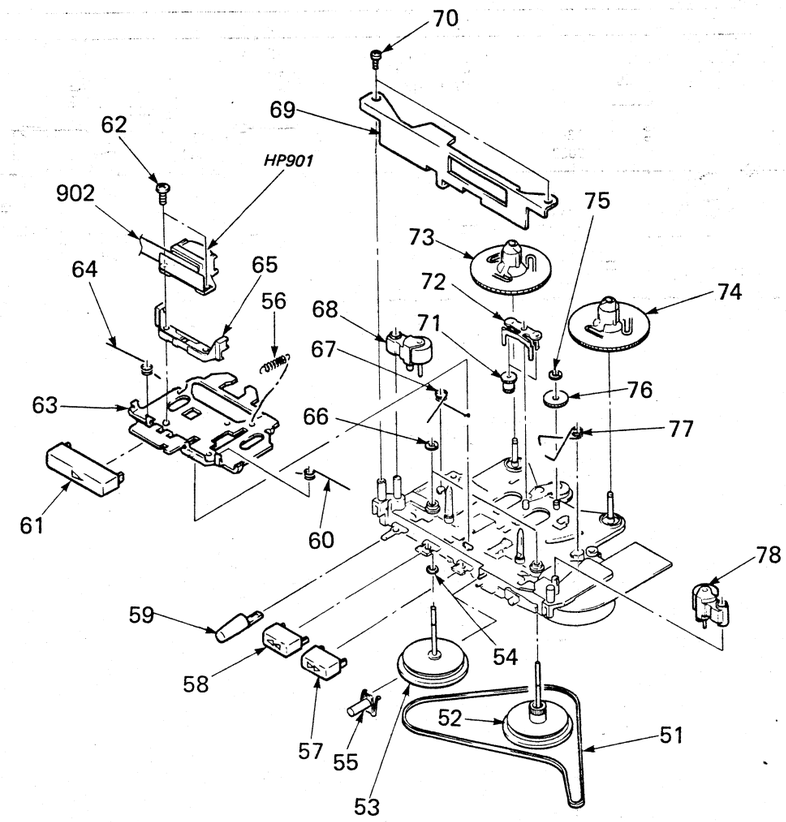



| No. | Part No. | Description | Remarks |
|---|---|---|---|
| 1 | X-3346-590-1 | (WG)...CABINET (REAR) ASSY | |
| 1 | X-3346-548-1 | (EXCEPT FOR WG)...CABINET (REAR) ASSY | |
| 2 | *3-346-727-01 | HOLDER, LED | |
| 3 | 3-346-725-01 | KNOB (TAPE) | |
| 4 | 3-346-726-01 | KNOB (DBB) | |
| 5 | 3-341-954-01 | TERMINAL BOARD, BATTERY (+) | |
| 6 | 3-341-953-01 | SPRING (-) | |
| 7 | 3-704-197-31 | SCREW (M1.4X3.0), NYLON | |
| 8 | X-3346-547-1 | (WM-AF64)...CABINET (FRONT) ASSY | |
| | X-3346-553-1 | (WM-BF64)...CABINET (FRONT) ASSY | |
| 9 | X-3346-546-1 | BRACKET ASSY | |
| 10 | X-3346-544-1 | (AEP,UK,E)...HOLDER ASSY, CASSETTE | |
| | X-3346-545-1 | (WM-AF64)...HOLDER ASSY, CASSETTE | |
| | X-3346-591-1 | (WG)...HOLDER ASSY, CASSETTE | |
| 11 | 3-704-197-21 | SCREW (M1.4X2.5), NYLON | |
| 12 | 3-336-708-01 | RACK, POINTER | |
| 13 | 1-465-012-11 | (WM-AF64)...TUNER UNIT (WITH PRESET) | |
| | 1-465-012-31 | (AEP,E)...TUNER UNIT (WITH PRESET) | |
| | 1-465-012-21 | (WG)...TUNER UNIT (WITH PRESET) | |
| | 1-465-012-41 | (UK)...TUNER UNIT (WITH PRESET) | |
| 14 | *3-346-737-01 | COVER | |
| 15 | 3-318-203-81 | SCREW (B1.7X7), TAPPING | |
| 16 | *3-347-182-01 | LABEL, MODEL NUMBER | |
| 901 | A-3213-774-A | MOUNTED PCB, MAIN | |
| RV2 | 1-230-979-11 | RES, VAR, CARBON (TUNING) 100K | |
| RV102 | 1-238-147-11 | RES, VAR (PRESET) | |
| RV301 | 1-238-172-11 | RES, VAR 10K/10K (VOL) | |



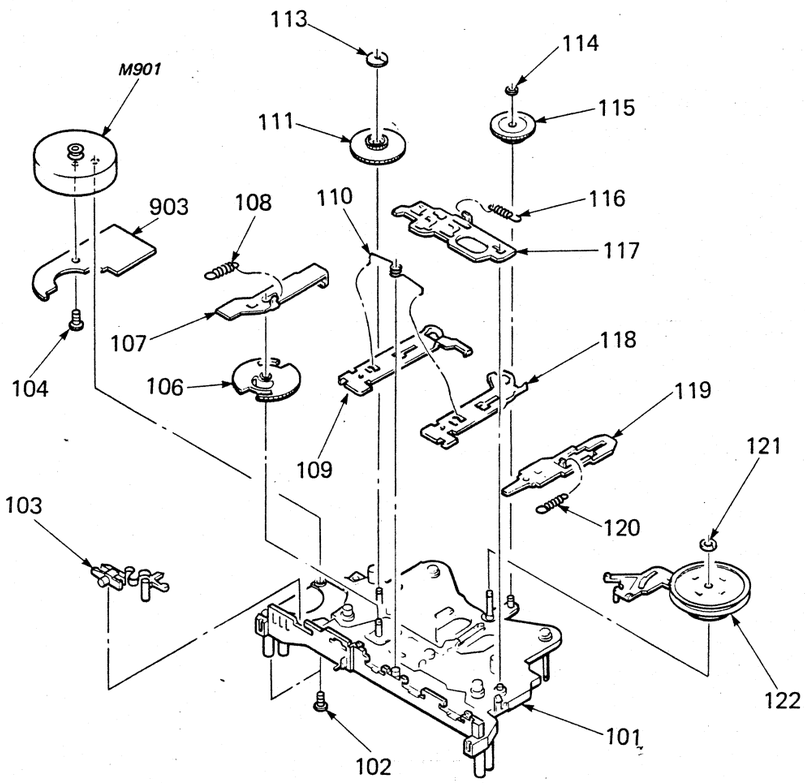
## 5-2.MECHANISM (1)

## 5-3.MECHANISM (2)




| No. | Part No. | Description | Remarks |
|---|---|---|---|
| 51 | 3-341-267-01 | BELT, CAPSTAN | |
| 52 | X-3335-635-1 | FLYWHEEL (T) ASSY | |
| 53 | X-3335-636-1 | FLYWHEEL ASSY | |
| 54 | 3-701-437-11 | WASHER (242T),TEFLON | |
| 55 | 3-341-294-01 | BUTTON (DIR) | |
| 56 | 3-341-271-01 | SPRING, TENSION | |
| 57 | 3-341-962-01 | BUTTON (FF) | |
| 58 | 3-341-963-01 | BUTTON (REW) | |
| 59 | 3-341-961-01 | BUTTON (STOP) | |
| 60 | 3-341-276-11 | SPRING (N) | |
| 61 | 3-341-960-01 | BUTTON (PLAY) | |
| 62 | 3-704-252-21 | SCREW (M1.4X3.8) | |
| 63 | 3-341-711-01 | LEVER, PLAY | |
| 64 | 3-341-277-11 | SPRING (R) | |
| 65 | 3-341-702-01 | GUIDE, TAPE | |
| 66 | 3-321-483-11 | RING, RETAINING | |
| 67 | 3-341-270-01 | SPRING (R) | |
| 68 | X-3335-624-1 | PINCH LEVER (R) ASSY | |
| 69 | 3-341-762-01 | HOLDER, S | |
| 70 | 3-893-942-21 | SCREW (1.7X5), TAPPING (B) | |
| 71 | 3-341-275-01 | GEAR, FR | |
| 72 | 3-341-701-01 | LEVER, FR | |
| 73 | 3-341-291-01 | GEAR, S REEL | |
| 74 | 3-341-290-01 | GEAR, T REEL | |
| 75 | 3-341-752-01 | WASHER, POLYETHYLENE (t=0.13) | |
| | 3-341-752-11 | WASHER, POLYETHYLENE (t=0.25) | |
| 76 | 3-341-265-01 | GEAR, R | |
| 77 | 3-341-763-01 | SPRING | |
| 78 | X-3335-623-1 | PINCH LEVER (N) ASSY | |
| HP901 | 1-543-439-11 | HEAD, MAGNETIC (PLAY BACK) | |
| 902 | 1-623-643-11 | PC BOARD, HEAD FLEXIBLE | |
| 101 | A-3163-146-A | | |
| 102 | 3-335-797-31 | | |
| 103 | 3-341-293-01 | | |
| 104 | 3-338-625-11 | | |
| 106 | 3-341-292-01 | | |
| 107 | 3-341-299-01 | | |
| 108 | 3-341-274-01 | | |
| 109 | 3-341-295-01 | | |
| 110 | 3-341-268-01 | | |
| 111 | 3-341-289-01 | | |

## 5-3.MECHANISM (2)




| Remarks | No. | Part No. | Description | Remarks | No. | Part No. | Description | Remarks |
|---|---|---|---|---|---|---|---|---|
| | 101 | A-3163-146-A | CHASSIS ASSY | | 113 | 3-311-815-11 | WASHER, POLYETHYLENE (t=0.25) | |
| | 102 | 3-335-797-31 | SCREW (M1.4X3), TOOTHED LOCK | | 114 | 3-570-615-01 | WASHER, POLYETHYLENE (t=0.25) | |
| | 103 | 3-341-293-01 | LEVER, MODE | | 115 | 3-341-266-01 | GEAR, T | |
| | 104 | 3-338-625-11 | SCREW (M1.4X1.6), WASHER HEAD | | 116 | 3-341-272-01 | SPRING, TENSION | |
| | 106 | 3-341-292-01 | GEAR, CAM | | 117 | 3-341-298-01 | PLATE, LOCK | |
| | 107 | 3-341-299-01 | LEVER, DIR | | 118 | 3-341-296-01 | LEVER, REW | |
| | 108 | 3-341-274-01 | SPRING (POWER TENSION), TENSION | | 119 | 3-341-297-01 | LEVER, STOP | |
| | 109 | 3-341-295-01 | LEVER, FF | | 120 | 3-341-273-01 | SPRING, TENSION | |
| | 110 | 3-341-268-01 | SPRING | | 121 | 3-570-615-01 | WASHER, POLYETHYLENE (t=0.25) | |
| | 111 | 3-341-289-01 | GEAR, DECELERATION | | 122 | A-3239-894-A | WHEEL ASSY, MIDWAY | |
| | | | | | 903 | 1-236-042-21 | CIRCUIT UNIT, SERVO | |
| | | | | | M901 | A-3133-336-A | MOTOR BLOCK ASSY | |



# SECTION 6
# ELECTRICAL PARTS LIST

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

- WG: West Germany model

| Ref.No. | Part No. | Dscription | | |
|---|---|---|---|---|
| 901 | A-3213-774-A | MOUNTED PCB, MAIN | | |
| C101 | 1-163-135-00 | CERAMIC CHIP 560PF | 10% | 50V |
| C102 | 1-163-135-00 | CERAMIC CHIP 560PF | 10% | 50V |
| C103 | 1-126-208-11 | CAP,ELECT 47MF | 20% | 4V |
| C104 | 1-163-023-00 | CERAMIC CHIP 0.015MF | 10% | 50V |
| C105 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C106 | 1-163-019-00 | CERAMIC CHIP 0.0068MF | | 50V |
| C107 | 1-163-809-11 | CERAMIC CHIP 0.047MF | 10% | 25V |
| C108 | 1-135-087-21 | TANTAL. CHIP 0.68MF | 10% | 20V |
| C109 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C110 | 1-163-034-00 | CERAMIC CHIP 0.033MF | 10% | 25V |
| C111 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% | 50V |
| C112 | 1-163-035-00 | CERAMIC CHIP 0.047MF | | 50V |
| C113 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C114 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C115 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C116 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% | 50V |
| C117 | 1-126-210-11 | CAP,ELECT 220MF | 20% | 4V |
| C118 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C119 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C120 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C121 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C122 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C123 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% | 50V |
| C124 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C201 | 1-163-135-00 | CERAMIC CHIP 560PF | 10% | 50V |
| C202 | 1-163-135-00 | CERAMIC CHIP 560PF | 10% | 50V |
| C203 | 1-126-208-11 | CAP,ELECT 47MF | 20% | 4V |
| C204 | 1-163-023-00 | CERAMIC CHIP 0.015MF | 10% | 50V |
| C205 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C206 | 1-163-019-00 | CERAMIC CHIP 0.0068MF | | 50V |
| C207 | 1-163-809-11 | CERAMIC CHIP 0.047MF | 10% | 25V |
| C208 | 1-135-087-21 | TANTAL. CHIP 0.68MF | 10% | 20V |
| C209 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C210 | 1-163-034-00 | CERAMIC CHIP 0.033MF | 10% | 25V |
| C211 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% | 50V |
| C212 | 1-163-035-00 | CERAMIC CHIP 0.047MF | | 50V |
| C213 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C214 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C215 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C216 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% | 50V |
| C217 | 1-126-210-11 | CAP,ELECT 220MF | 20% | 4V |
| C218 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C219 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C220 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C221 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |

| Ref.No. | Part No. | Dscription | | |
|---|---|---|---|---|
| C222 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C223 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% | 50V |
| C224 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C301 | 1-126-210-11 | CAP,ELECT 220MF | 20% | 4V |
| C302 | 1-126-193-11 | CAP,ELECT 1MF | 20% | 50V |
| C303 | 1-126-210-11 | CAP,ELECT 220MF | 20% | 4V |
| C304 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C305 | 1-163-038-00 | CERAMIC CHIP 0.1MF | | 25V |
| C306 | 1-126-210-11 | CAP,ELECT 220MF | 20% | 4V |
| C307 | 1-163-038-00 | CERAMIC CHIP 0.1MF | | 25V |
| C308 | 1-135-103-00 | TANTAL. CHIP 3.3MF | 10% | 4V |
| C309 | 1-163-833-00 | CERAMIC CHIP 0.068MF | | 25V |
| C310 | 1-126-208-11 | CAP,ELECT 47MF | 20% | 4V |
| C311 | 1-124-779-00 | CAP,ELECT 10MF | 20% | 16V |
| C312 | 1-126-198-11 | CAP,ELECT 4.7MF | 20% | 35V |
| C313 | 1-126-209-11 | CAP,ELECT 100MF | 20% | 4V |
| C314 | 1-126-210-11 | CAP,ELECT 220MF | 20% | 4V |
| C315 | 1-126-210-11 | CAP,ELECT 220MF | 20% | 4V |
| C316 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | 50V |
| C317 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C318 | 1-126-210-11 | CAP,ELECT 220MF | 20% | 4V |
| C319 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C320 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | 50V |
| CN301 | *1-566-682-11 | HOUSING, CONNECTOR 6P | | |
| CN302 | 1-566-692-11 | SOCKET, CONNECTOR 3P | | |
| CN303 | *1-566-682-11 | HOUSING, CONNECTOR 6P | | |
| D301 | 9-988-942-01 | DIODE SLB-24VR | | |
| IC301 | 8-759-820-66 | IC LA4580M | | |
| IC302 | 8-759-701-07 | IC NJM2063AM | | |
| IC303 | 8-759-805-09 | IC CXA1249M | | |
| J302 | 1-562-974-11 | JACK (PHONES) | | |
| JP1 | 1-216-296-00 | METAL GLAZE 0 | 5% | 1/8W |
| JP2 | 1-216-295-00 | METAL GLAZE 0 | 5% | 1/10W |
| JP3 | 1-216-295-00 | METAL GLAZE 0 | 5% | 1/10W |
| L101 | 1-410-196-11 | INDUCTOR CHIP 2.2UH | | |
| L201 | 1-410-196-11 | INDUCTOR CHIP 2.2UH | | |
| L301 | 1-410-196-11 | INDUCTOR CHIP 2.2UH | | |
| L302 | 1-410-196-11 | INDUCTOR CHIP 2.2UH | | |
| Q301 | 8-729-403-17 | TRANSISTOR XN1215 | | |
| Q302 | 8-729-102-62 | TRANSISTOR 2SC1623 | | |
| Q303 | 8-729-102-62 | TRANSISTOR 2SC1623 | | |
| Q304 | 8-729-102-62 | TRANSISTOR 2SC1623 | | |

| Ref.No. | Part No. | Dscription | | | |
|---|---|---|---|---|---|
| R101 | 1-216-035-00 | METAL GLAZE | 270 | 5% | 1/10W |
| R102 | 1-216-105-00 | METAL GLAZE | 220K | 5% | 1/10W |
| R103 | 1-216-075-00 | METAL GLAZE | 12K | 5% | 1/10W |
| R104 | 1-216-075-00 | METAL GLAZE | 12K | 5% | 1/10W |
| R105 | 1-216-112-00 | METAL GLAZE | 430K | 5% | 1/10W |
| R106 | 1-216-089-00 | METAL GLAZE | 47K | 5% | 1/10W |
| R107 | 1-216-061-00 | METAL GLAZE | 3.3K | 5% | 1/10W |
| R108 | 1-216-065-00 | METAL GLAZE | 4.7K | 5% | 1/10W |
| R110 | 1-216-025-00 | METAL GLAZE | 100 | 5% | 1/10W |
| R111 | 1-216-073-00 | METAL GLAZE | 10K | 5% | 1/10W |
| R112 | 1-216-097-00 | METAL GLAZE | 100K | 5% | 1/10W |
| R113 | 1-216-089-00 | METAL GLAZE | 47K | 5% | 1/10W |
| R114 | 1-216-049-00 | METAL GLAZE | 1K | 5% | 1/10W |
| R115 | 1-216-049-00 | METAL GLAZE | 1K | 5% | 1/10W |
| R201 | 1-216-035-00 | METAL GLAZE | 270 | 5% | 1/10W |
| R202 | 1-216-105-00 | METAL GLAZE | 220K | 5% | 1/10W |
| R203 | 1-216-075-00 | METAL GLAZE | 12K | 5% | 1/10W |
| R204 | 1-216-075-00 | METAL GLAZE | 12K | 5% | 1/10W |
| R205 | 1-216-112-00 | METAL GLAZE | 430K | 5% | 1/10W |
| R206 | 1-216-089-00 | METAL GLAZE | 47K | 5% | 1/10W |
| R207 | 1-216-061-00 | METAL GLAZE | 3.3K | 5% | 1/10W |
| R208 | 1-216-065-00 | METAL GLAZE | 4.7K | 5% | 1/10W |
| R210 | 1-216-025-00 | METAL GLAZE | 100 | 5% | 1/10W |
| R211 | 1-216-073-00 | METAL GLAZE | 10K | 5% | 1/10W |
| R212 | 1-216-097-00 | METAL GLAZE | 100K | 5% | 1/10W |
| R213 | 1-216-089-00 | METAL GLAZE | 47K | 5% | 1/10W |
| R214 | 1-216-049-00 | METAL GLAZE | 1K | 5% | 1/10W |
| R215 | 1-216-049-00 | METAL GLAZE | 1K | 5% | 1/10W |
| R301 | 1-216-049-00 | METAL GLAZE | 1K | 5% | 1/10W |
| R302 | 1-216-001-00 | METAL GLAZE | 10 | 5% | 1/10W |
| R303 | 1-216-069-00 | METAL GLAZE | 6.8K | 5% | 1/10W |
| R304 | 1-216-055-00 | METAL GLAZE | 1.8K | 5% | 1/10W |
| R305 | 1-216-057-00 | METAL GLAZE | 2.2K | 5% | 1/10W |
| R306 | 1-216-073-00 | METAL GLAZE | 10K | 5% | 1/10W |
| R307 | 1-216-037-00 | METAL GLAZE | 330 | 5% | 1/10W |
| R308 | 1-216-051-00 | METAL GLAZE | 1.2K | 5% | 1/10W |
| R309 | 1-216-081-00 | METAL GLAZE | 22K | 5% | 1/10W |
| R310 | 1-216-089-00 | METAL GLAZE | 47K | 5% | 1/10W |
| R311 | 1-216-041-00 | METAL GLAZE | 470 | 5% | 1/10W |
| RV2 | 1-230-979-11 | RES, VAR, CARBON (TUNING) 100K | | | |
| RV102 | 1-238-147-11 | RES, VAR (PRESET) | | | |
| RV301 | 1-238-172-11 | RES, VAR 10K/10K (VOL) | | | |

| Ref.No. | Part No. | Dscription |
|---|---|---|
| S301 | 1-571-149-11 | SWITCH, LEAF (DIR) |
| S302 | 1-571-277-22 | SWITCH, SLIDE (TAPE) |
| S303 | 1-571-275-21 | SWITCH, SLIDE (DOLBY NR) |
| S304 | 1-571-506-21 | SWITCH, SLIDE (DBB) |
| S305 | 1-571-149-11 | SWITCH, LEAF (POWER) |

ACCESSORY & PACKING MATERIAL

| | |
|---|---|
| *3-346-756-01 | CUSHION (UPPER) |
| *3-346-757-01 | CUSHION (LOWER) |
| *3-346-760-01 | (CANADIAN)...INDIVIDUAL CARTON |
| *3-346-758-01 | (USA)...INDIVIDUAL CARTON |
| *3-346-762-01 | (E)...INDIVIDUAL CARTON |
| *3-348-409-01 | (AEP,WG,UK)...INDIVIDUAL CARTON |
| 3-786-018-21 | (WM-AF64)...MANUAL INSTRUCTION |
| 3-786-018-11 | (WM-BF64)...MANUAL INSTRUCTION |
| 3-786-018-41 | (WG,AEP)...MANUAL INSTRUCTION |
| 8-952-260-91 | (US,CANADIAN,AEP,WG,UK)...HEADPHONE MDR-W10L/B SET |
| 8-952-350-90 | (E)...EARPHONE MDR-E454 SET |
| X-3346-549-1 | CASE ASSY, CARRYING |